RULES FOR ASSIGNING OXIDATION NUMBERS

RULE 1: The oxidation number of any free element is 0.

Ex: H2 or P4

RULE 2: The oxidation number of a monatomic ion (Na+, Ca+2, Cl-, ....) is equal to the charge on the ion.

Note: some ions have multiple oxidation numbers such as Fe+2 or +3

RULE 3: The oxidation number of each hydrogen ion in most compounds is +1.

Note exception: When hydrogen is a hydride, its charge is a -1.

Ex: Lithium hydride LiH

RULE 4: The oxidation number of each oxygen ion in most compounds is -2.

Ex: H2O Hydrogen ion=+1, Oxygen ion=-2

Note exception: In peroxides, oxygen charge is -1.

Peroxides take the form X2O2 such as sodium peroxide: Na2O2

RULE 5: The sum of the oxidation numbers of all the ions in a particle must equal the apparent charge of that particle.

Ex: H2O a compound=0

ClO3- a polyatomic ion= -1

RULE 6: In compounds, the elements of Group IA, IIA, and IIIA (except Tl) have only one oxidation number which is positive and corresponds to its group number on the periodic table. +1, +2, and+3 respectively.

Charges

State the oxidation number by looking on the periodic table for each of the ions that make up the compound. Don’t forget the oxidation rules. These are all compounds so they add up to zero!!!!!

1. BaCl2

2. MgO

3. SO2

4. PH3

5. Al2O3

6. H2SO4 \*\*

7. KNO3 \*\*

8. AlF3

9. CaCl2

10. K2O

11. AlCl3

12. Na2O

13. FeO

Charges

State the oxidation numbers of each ion that makes up each **polyatomic ion.** Don’t forget the oxidation rules. These do NOT add up to zero!!!!

1. CO3-2

2. ClO3-

3. CrO4-2

4. CN-

5. Cr2O7-2

6. HCO3-

7. HSO4-

8. NO3-

9. NO2-

10. MnO4-

11. PO4-3

12. SO4-2

13. SO3-2

14. OH-

15. BO3-3

16. Fe(CN)6-3

17. Fe(CN)6-4

18. HPO4-2

19. NH4+

Write the correct formula for the following binary **compounds**. They add up to zero.

1. Ba +2 + S – 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Na + 1 + O – 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Al + 3 + Br – 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. K + 1 + Cl – 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Sn + 4 + S – 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Sn + 4 + P – 3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Al + 3 + F – 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Fe + 3 + F – 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Zn + 2 + C – 4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Cu + 2 + N – 3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Write the correct formula for the following binary compounds using the periodic table to find their charge.

1. sodium + chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. calcium + oxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. barium + nitride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. lithium + carbide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. aluminum + iodide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. strontium + fluoride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. beryllium + sulfide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. magnesium + phosphide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. hydrogen + oxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. carbon + chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let’s try some more:

1. magnesium + nitride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. calcium + iodide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. aluminum + fluoride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. carbon + chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. potassium + oxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. sodium + sulfide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. barium + phosphide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. lithium + arsenide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. beryllium + oxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. hydrogen + bromide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. strontium + phosphide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. carbon + nitride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. potassium + carbide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. aluminum + sulfide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. sodium + iodide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. magnesium + fluoride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. strontium + carbide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. tin + oxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. iron + sulfide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. aluminum + oxide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Now, you write the symbol/formula and look up the charges for the following:

Element or Ion Symbol/Formula Charge and Number(s)

1. aluminum \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. ammonium \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.antimony \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. barium \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. bromide \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. calcium \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. carbonate \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. chloride \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. copper(II) \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. fluoride \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. hydrogen carbonate\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. hydronium \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. hydroxide \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. iron(II) \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. iron(III) \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. mercury(I) \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. hydride \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. mercury(II) \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. lead(IV) \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. oxide \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. phosphate \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. potassium \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. sulfide \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. sodium \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

26. sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

27. silver \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \*

28. zinc \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \*

Now we’ll try putting some polyatomic ions into some of the compounds!!

Formula Writing

1. sodium chloride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. ammonium hydroxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. calcium sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. magnesium nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. aluminum phosphate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. zinc chloride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. mercury (II) oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. aluminum sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. silver nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. barium hydroxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. potassium sulfide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. iron (II) sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. mercury (I) chloride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. copper (II) carbonate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. calcium acetate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. iron (III) sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. calcium phosphate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. zinc sulfide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. ammonium carbonate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. antimony (III) chloride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. potassium oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. ammonium sulfide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. mercuric nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. iron (III) chloride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. aluminum oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NAMING COMPOUNDS

Three systems of naming: New(Roman Numerals or Stock), Old(Traditional), and Greek.

1. NEW: This system is used when there are more than one positive ion that exists for the positive ion.(All positive ions except those in Groups IA, IIA, IIIA and Ag, and Zn and Cd)

Ex: mercury(II) oxide HgO

2. OLD: This system is used for five elements only: Fe, Cu, Pb, Sn, Hg

The lower of the two charges has the ending -ous

The higher of the two charges has the ending -ic

The stem for each is taken from the Latin.

Ex: Fe+2 ferrous Fe+3 ferric

Cu+1 cuprous Cu+2 cupric

Pb+2 plumbous Pb+4 plumbic

Sn+2 stannous Sn+4 stannic

Hg+1 mercurous Hg+2 mercuric

Ex: HgO mercuric oxide

SnF2 stannous fluoride

NOTE: Compounds named the old system can **also** be named the new system BUT the opposite is not necessarily true!! Be careful.

3. GREEK: To use this system, two conditions must hold.

a) The compound must be a binary compound(a compound with only two elements).

b) The positive ion must be located in Groups IIIA, IVA, VA, VIA or VIIA **AND** to the right of the zig-zag line. Note: there are some exceptions.

Prefixes are used to name the compound.

1 mono- 2 di- 3 tri- 4 tetra- 5 penta- 6 hexa- 7 hepta-

8 octa- 9 ennea- 10 deca-

Ex: NO nitrogen monoxide (NOTE: mono is **not** used on the positive ion)

CO2 carbon dioxide

N2O3 dinitrogen trioxide

EXTRA INFO ON POLYATOMIC IONS AND NAMING:

per---ate one more oxygen that -ate

---ate MOST COMMON FORM. MEMORIZE THESE: ClO3-, NO3-, CO3-2,

SO4-2, PO4-3

---ite one less oxygen than -ate

hypo---ite two less oxygen than -ate

---ide no oxygen

EX: KClO4 potassium perchlorate

KClO3 potassium chlorate

KClO2 potassium chlorite

KClO potassium hypochlorite

KCl potassium chloride

NAMING OF ACIDS

1. Naming of a binary acid(two elements) hydro—(stem)—ic

Ex: HF hydrofluoric acid

HCl hydrochloric acid

2. Ternary acids(three elements

--ate ending becomes –ic (Your --ate something --ic ky in the cafeteria)

--ite ending becomes –ous

Ex: H2SO4 hydrogen sulfate becomes sulfuric acid

H2CO2 hydrogen carbonite becomes carbonous acid

NAME FORMULA

1. NaOH 1. sodium carbonate

2. NH4Cl 2. aluminum chlorate

3. MgCrO4 3. magnesium nitrite

4. CaCO3 4. ammonium chloride

5. FeI2 5. ferrous bicarbonate

6. Cu2O 6. carbon tetrafluoride

7. SnCl4 7. silver nitrate

8. Al(NO3)3 8. cobalt(II) phosphite

9. CCl4 9. mercury(II) sulfide

10. P2O5 10. sulfur dioxide

11. Na3PO4 11. cuprous hydroxide

12. HClO3 12. zinc nitride

13. Hg2SO4 13. potassium nitride

14. Pb(C2H3O2)2 14. plumbous fluoride

15. CO2 15. lithium phosphate

16. (NH4)3N 16. arsenic(V) oxide

17. Na2P 17. nickel(II) sulfate

18. CO 18. calcium carbonate

19. MgF2 19. lithium nitrate

20. CuCl 20. potassium phosphate

Naming and Formula Writing #2

NAME FORMULA

1. Cr(ClO3)3 1. ferrous chlorate

2. BaSO3 2. plumbic acetate

3. Fe(NO3)2 3. barium phosphite

4. CaO 4. zinc chromate

5. CoPO4 5. copper(I) sulfate

6. CuCr2O7 6. copper(II) sulfate

7. FeBr3 7. calcium hydroxide

8. Zn(OH)2 8. potassium permanganate

9. HgCO3 9. iron(III) oxide

10. NaCl 10. iron(II) oxide

11. FeSO4 11. sodium chlorate

12. CO2 12. aluminum chloride

13. AgNO3 13. cuprous carbonate

14. PbF4 14. carbon monoxide

15. SO2 15. lithium fluoride

16. P2O5 16. barium phosphate

17. Ba(ClO3)2 17. diphosphorous trioxide

18. Cr2O3 18. nickel(II) bromide

19. NO 19. zinc nitrate

20. Li2CO3 20. magnesium nitride

Harder Naming and Fromula Writing#1

FORMULA

1. calcium chloride 13. calcium iodide

2. calcium carbonate 14. potassium fluoride

3. sodium cyanide 15. calcium hydroxide

4. magnesium oxide 16. Bismuth (III) sulfate

5. sodium fluoride 17. magnesium phosphate

6. aluminum chloride 18. mercury(II) cyanide

7. silicon(IV) oxide 19. potassium nitrate

8. zinc iodide 20. sodium hydroxide

9. cobalt(II) carbonate 21. lead(II) nitrate

10. potassium hydride 22. zinc sulfate

11. copper(II) carbonate 23. sodium sulfide

12. potassium hydroxide 24. iron(III) chloride

NAME

1. BaCl2 16. Cu(NO3)2

2. Zn(NO3)2 17. P2O5

3. CsC2H3O2 18. PCl5

4. H2S 19. SF6

5. K2CO3 20. PCl3

6. FeCl2 21. NH4NO3

7. Al(NO3)3 22. Na2SO4

8. NH4C2H3O2 23. Na2O

9. Ba(OH)2 24. Na3PO4

10. Cu(C2H3O2)2 25. NH4Cl

11. KCl 26. NaCl

12. KBr 27. Na2SO3

13. KI 28. SnCrO4

14. Ca(NO3)2 29. K2CO3

15 HgI2 30. Hg2(NO3)2

Harder Naming and Formula Writing#2

NAME

1. FeI2 11. Hg(CN)2

2. Li2Cr2O7 12. SbCl3

3. K3N 13. K2O2

4. CuSO4 3H2O 14. H3PO4

5. N2O4 15. Ca(H2PO4)2

6. NaNO2 16. Zn(ClO3)2

7. Pb(HCO3)2 17. Al2(C2O4)3

8. As4O6 18. NH4F

9. Ag2S 19. Ca(MnO4)2

10. Mg(OH)2 20. S2Cl2

FORMULA

1. tin(IV) chloride 13. mercuric iodide

2. potassium phosphate 14. lithium peroxide

3. sodium chromate 15. arsenic(III) sulfide

4. barium carbonate 16. triphosphorous pentanitrate

5. potassium permanganate 17. ferrous phosphate

6. ammonium sulfate 18. chromium(III) oxide

7. calcium chlorate 19. mercury(I) chloride

8. iodine trichloride 20. tin(II) bromide

9. ammonium sulfite 21. iron(III) sulfate

10. dinitrogen tetraoxide 22. zinc acetate

11. aluminum hydroxide 23. sodium nitrate

12. disulfur decafluoride 24. silver oxide

**FORMULAS AND OXIDATION NUMBERS**

A chemical formula is a combination of symbols and numerical subscripts that represents the composition of a compound. The symbols indicate which elements are present and the numerical subscripts indicate the relative proportion of each element in the compound. These proportions can be predicted using the oxidation numbers of the elements and the charges of polyatomic ions. When atoms acquire a charge they are called ions. Ions consisting of more than one atom are polyatomic ions. Its oxidation number represents the apparent charge on an atom.

It is important that all scientists use the same system for writing chemical formulas. This helps to ensure clear and consistent transmission of information. Therefore, the following rules should be used for writing chemical formulas.

1. **In a neutral compound the sum of the oxidation numbers of the elements and the charges on polyatomic ions in that compound must equal zero.**
2. **One positive ( +) charge will neutralize one negative ( - ) charge.**
3. **Atoms with positive oxidation numbers or ions with positive charges are written first.**
4. **When the relative proportion of an element in a compound is greater than one, the symbol for that element must be followed by a numerical subscript indicating its relative proportion, as in MgCl2**
5. **When the relative proportion of a polyatomic ion in a compound is greater than one, the symbol for the polyatomic ion must be enclosed by parentheses, followed by the correct numerical subscript, as in AI2(SO4)3.**

In this experiment you will use cut-out models of ions to form neutral compounds. The correct chemical formula and name for each compound will be determined by balancing oxidation numbers and charges.

OBJECTIVES

In this experiment, you will: • cut out models of ions • match the necessary number of ions until the positive and negative oxidation numbers equal 0 • predict the correct formulas for the compounds listed.

EQUIPMENT scissors

 pencil and paper

sheet of ion models

glue stick

PROCEDURE

1. Prepare a data table as directed in the  Analysis.
2. Cut out each of the “ion” squares from the sheet provided by your teacher.
3. Construct formulas for the following combinations of substances. For example, the formula for a compound containing magnesium and chlorine may be determined in the following way. Place the Mg2+ ion on a piece of paper. Place enough CI- ions alongside the Mg2 + ion to balance the charges. (Positive charges must equal negative charges.)

4. Predict formulas for four additional compounds using the ions listed in this experiment. (see data table for requirements). Use references to determine if your compounds exist.

**Combining Substances:**

aluminum and bromine

sodium and oxygen

iron(II) and sulfur

aluminum and nitrate ion

potassium and sulfate ion

iron(III) and chlorine

ammonium ion and sulfur

aluminum and oxygen

iron(lII) and sulfate ion

sodium and phosphate ion

ANALYSIS Use the table provided for your data. Be sure to use enough glue so that the ions do not fall off the chart. Use the rules listed in your textbook for writing formulas and naming compounds.

CONCLUSIONS

1. Some compounds are described as binary com-  pounds. What does this term mean? What ending is given to the name of this type of compound? Refer to your data table and list the formulas for any binary compounds you have constructed.
2. Most polyatomic ions end in -ate or -ite. Name at least two which end in -ide. (Look in your notes from class or your textbook)

3. Hydrogen peroxide (H2O2) and water (H2O) both contain the same two elements. Using reference materials, describe their properties and uses. Use the information on hydrogen peroxide and water, and the data from this experiment to discuss the importance of writing correct chemical formulas.

Discussion questions:

Now, you make up a compound that fits the following criteria:

State its formula and its name.

1. Transition metal + Polyatomic anion

2. Transition metal + anion from family 15, 16, or 17

3. Cation from family 1, 2, or 13 + Polyatomic anion

4. Cation from family 1, 2, or 13 + Anion in family 15, 16, or 17

Conclusion questions 1 and 2 for the “B”

Conclusion question 3 for the “A”